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ABSTRACT

Graduates' perceptions concerning the value of required research experience in orthodontic postdoctoral programs were determined. Factors in the postdoctoral research program that provided positive/negative experiences were also identified. Fifteen attitude statements concerning the merits of required research projects and demographic items on the graduates were completed by 307 U.S. orthodontists who completed their residencies in 1980, 1981, or 1982. Findings include: 66% of orthodontists felt their required graduate research made them better orthodontists; 83% felt that the research experience improved their ability to evaluate the professional literature and 51% believed it helped them evaluate new clinical techniques; and 28% felt that the time spent on research would have been better spent on some other aspect of training and 14% felt that research was not applicable to clinical practice. Factors that seemed linked to positive attitudes were a helpful adviser, having a major role in developing the project, and an interesting project. The 15 attitude statements are appended. (SW)

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Perceived Value of Required Research in Orthodontic Postgraduate Programs

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Perceived Value of Required Research in Orthodontic Postgraduate Programs.

The completion of a research project is mandatory in virtually all contemporary postgraduate orthodontic programs in the United States. The related literature concerns the value, purpose, and design of required research in orthodontic graduate education programs.

Moorrees (1984) reporting on the current status of required research stated that "The recently distributed (1984) guidelines for specialty education in orthodontics state that research is encouraged to develop intellectual growth, a creative attitude, a better interpretation of scientific literature, and a desire for continued study. Regrettably, this strong justification for a research project is not translated into a firm recommendation." Watson (1984) also supports the importance of research as he says "Contemporary orthodontic treatment is a direct result of our research. Flaws in research beget flaws in treatment. The evaluation of successful care by documentation of relative stability, improved health, and esthetics depends on long-term observations." He further stresses the importance of faculty supervision of student research activities and adherence to good research methodology.

Others (Turpin, 1984 and Proffit, 1980) perceive some difficulties with the research component of orthodontic graduate programs due to an increase in the amount of clinical material to be presented and shrinking university budgets. Turpin, however, also states that a lack of exposure to a research program may result in negative attitudes about the importance of research in individuals who may eventually enter and influence orthodontic education. Both Turpin and Proffit stress the importance of research in the overall training.

Sinclair and Alexander (1984) are concerned about allocating time for research but realize its importance for developing critical analysis skills and understanding of new research developments.

The positive aspects of including a research program are supported by Mills (1982) who believes that the research experience could encourage the selection of a career in academic orthodontics. In addition, Vig (1983) believes that research in postgraduate education will ultimately aid the student in providing better services to patients.

The purported benefits, as indicated in the literature can be summarized as follows:

1. The research experience will improve the postgraduates' functioning as a health professional due to an increased ability to evaluate other research, professional literature, new techniques and diagnostic alternatives.
2. The results of the research conducted by the postgraduate student would contribute to the body of scientific or clinical data in orthodontics.
3. The research experience could develop or augment a decision to select a career in orthodontic education.

The literature indicates that the academic community for the most part considers the time allocated to research a beneficial part of the overall educational experience. However, given the amount of technical and basic science knowledge which must be provided in an orthodontic postgraduate program, the devotion of time to the research project has been called into question. Would the time allocated for research be better spent on projects more directly related to the realities of private practice? Or, is this traditional exercise justified by its intrinsic value to the student and the

profession? No studies have been found which address the perceived value of the research by the students who experience the training therefore the purposes of this study were to determine:

1. If graduates of orthodontic postdoctoral programs perceived that the required research experience contributed to their professional development and
2. Which factors in the postdoctoral research program contributed to or detracted from the experience.

METHOD

A set of statements was developed based on the concepts presented in the orthodontic literature pertaining to the merits of required research projects in order to assess attitudes toward participation in orthodontic postgraduate research projects.

The statements were reviewed by four judges including an orthodontic educator, a statistician and two educational researchers for pertinence, clarity, and consistency of language. Fifteen attitude statements were retained for the survey and were rated using a 5 point Likert scale ranging from strongly agree to strongly disagree. (See Figure 1).

Some items were designed to express opposite opinions. For instance, agreement with items 1, 4 and 5 support the value of research, whereas disagreement with item 9 would support the same opinion. If the responses maintained this distinction then consistency of responding would be indicated. Negative correlations between items 1, 4 and 5 and item 9 would indicate that the respondents were not just giving positive responses to all items.

Demographic variables such as year of graduation, school, degree or certificate programs and area of research were also included. The surveys were mailed to all orthodontists in the United States who completed their

residencies in 1980, 1981 or 1982. These years were selected because these orthodontists would have had three to five years of professional experience to assess the value of the postgraduate research. The authors believed that shorter periods of time may not have given the respondents enough time for candid evaluation and longer time frames might have modified accurate reflection. 739 surveys were mailed to graduates of the 75 postgraduate programs recognized by the American Association of Orthodontists. 307 (42%) usable returns were received.

Percentages of strongly agree, agree, neutral, disagree and strongly disagree were computed for each item, see Table 1. These percentages were grouped into three categories: 1) agree for either strongly agree or agree, 2) neutral and 3) disagree for either strongly disagree or disagree. Correlations among responses to the statements were also computed.

RESULTS AND DISCUSSION

As shown by the percentages in Table 3, orthodontists, on the whole, indicted that they felt their required graduate research made them better orthodontists. The responses to items 1, 4, 5, 6, 9 and 14 support this. Sixty-six percent of the respondents agreed that their research experience contributed to their becoming better orthodontists. Eighty percent agreed that graduate research provides a meaningful contribution to the field of orthodontics. Eighty-three percent felt that the research experience improved their ability to evaluate the professional literature and 51% believe it helped them evaluate new clinical techniques. Only 28% agreed that the time spent on research would have been better spent on some other aspect of training and 14% felt that research was not applicable to clinical practice.

Agreement with items, 1, 4, 5 and 6 support the value of graduate research, whereas disagreement with item 9 and 14 supports the same conclusion. It is interesting to note that although there was agreement (83%) that graduate research provides meaningful contributions to the field of orthodontics, only 38% believed that their research project provided a meaningful contribution to the field of orthodontics.

With regard to the items concerning the factors which may have influenced attitudes toward the research experience the following items are of note. The respondents agreed that the project advisor was helpful, that they had a major role in developing and conducting their own research project, and that their research project was interesting.

The responses concerning influence of the research on desire to teach were mixed, 11% agreed that the research had diminished a desire to teach but only 32% indicated that their research experience had reinforced a desire to teach. The responses were also divided on whether or not faculty who are engaged in research are better teachers than those who are not; 21% agreed, 28% disagreed.

The intercorrelations among the items are presented in Table 2. Item 1 correlated significantly (positively or negatively) with all the statements except 7. The highest correlation ($r = -.70$, $p. .05$) occurred between items 1 and 9, indicating that those who agreed their research experience had contributed to their becoming better orthodontists also disagreed that the research time could have been better spent in other pursuits. The moderately high ($r = .50$) correlation between items 5 and 6 indicated that those who felt their research experience improved their ability to evaluate professional literature also felt that the experience helped them evaluate new clinical techniques. The correlation ($r = .56$) between items 11 and 12

indicated that students who had a major role in developing their research project also found the project interesting.

CONCLUSIONS

The responses indicate that the orthodontists surveyed believe that the graduate research experience contributed to their functioning as orthodontists, improved ability to evaluate professional literature, evaluate new clinical techniques and that, in general, graduate research projects provide meaningful contributions to the field of orthodontics. The factors which appear to be related to the positive attitude are that the advisor was helpful, having a major role in developing the project, and that the project was interesting. The respondents did not agree that the time would have been better spent elsewhere or that the research was not applicable to clinical practice. The research experience did not necessarily reinforce a desire to teach nor did they see faculty who do research as better teachers.

These results suggest that having the postgraduate student engage in a research project is accomplishing the goals of the educators. It appears that those who responded obtained the desired benefits and the factors which were anticipated to be important, indeed were. However, before being overly optimistic about the success of this educational experience one must consider the actual return percentages. Forty-two percent of the sample returned the survey and 66% of those indicated that the research experience contributed to their becoming a better orthodontist. However, it may be that only those who had a positive attitude about the research experience returned the survey. We cannot conclude that the 58% who did not respond necessarily share the same opinions.

Figure 1 Items from Survey.

STATEMENTS

1. My graduate research experience contributed to my becoming a better orthodontist.
2. The advisor for my project was helpful.
3. My research project would have been more meaningful if it had been more clinical in nature.
4. Graduate research provides meaningful contributions to the field of orthodontics.
5. My research experience improved my ability to evaluate professional literature.
6. My research experience has helped me evaluate new clinical techniques.
7. My research project would have been more meaningful if it had more basic science emphasis
8. My research experience diminished my desire to teach at some point in my career.
9. The time spent on my research project would have been better spent on some other aspect of my orthodontic training.
10. My research project provided a meaningful contribution to the field of orthodontics.
11. I had a major role in developing and conducting my own research project.
12. My research project was interesting.
13. Faculty who are actively engaged in research are better teachers than those who are not.
14. My research was not applicable to clinical practice.
15. My research experience reinforced a desire to teach at some point in my career.

Table 1. Percentages of Each Response (Strongly Agree through Strongly Disagree) for Each Question Questionnaire.

Proportions for each question

QUESTION	STRONGLY AGREE	AGREE	NEUTRAL	DISAGREE	STRONGLY DISAGREE	MISSING
1.	.29	.37	.14	.14	.05	.02
2.	.30	.39	.17	.06	.05	.03
3.	.08	.21	.37	.20	.07	.06
4.	.43	.37	.12	.04	.01	.02
5.	.44	.39	.10	.04	.01	.02
6.	.19	.32	.25	.16	.04	.02
7.	.02	.05	.34	.45	.11	.03
8.	.03	.08	.24	.37	.26	.02
9.	.12	.16	.17	.37	.16	.02
10.	.10	.28	.32	.20	.08	.02
11.	.30	.50	.10	.06	.02	.02
12.	.26	.51	.14	.05	.03	.02
13.	.07	.14	.37	.25	.14	.02
14.	.04	.10	.14	.44	.26	02
15.	.09	.23	.38	.21	.07	02

Table 2. Correlations Between Questions
($p \leq .05$ for $r \geq .195$)

QUESTION

QUESTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1														
2	39													
3	38	23												
4	46	30	18											
5	45	20	19	40										
6	50	14	23	34	50									
7	19	03	09	05	06	18								
8	31	15	21	18	18	19	03							
9	70	32	42	40	38	36	20	34						
10	54	35	36	44	37	40	04	29	42					
11	35	18	32	17	22	27	04	10	32	38				
12	49	31	36	38	32	32	00	23	47	51	56			
13	32	16	10	17	12	16	20	06	30	20	21	26		
14	40	16	34	22	21	35	02	19	30	48	42	44	19	
15	42	21	20	27	33	27	07	41	49	33	29	39	29	21

Table 3 Combined Percentages by Items

Item	Agree	Neutral	Disagree	Missing
1	66	14	19	2
2	69	17	11	3
3	29	37	27	6
4	80	12	5	2
5	83	10	5	2
6	51	25	20	2
7	7	34	56	3
8	11	24	63	2
9	28	17	53	2
10	38	32	28	2
11	80	10	8	2
12	77	14	8	2
13	21	37	39	2
14	14	14	70	2
15	32	38	28	2

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